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THE ECONOMIC ROLE OF GOVERNMENT: PROPERTY RIGHTS, EXTERNALITIES AND MECHANISM DESIGNS

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IRIS Summary Working Paper No. 76
The Economic Role of Government: Property Rights, Externalities and Mechanism Design

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This paper provides a discussion of the role of government as arbiter of property rights. Issues of property rights and implications for the efficiency of resource allocation are particularly important in cases where there are externalities as well as asymmetric information. Ronald Coase, in an influential piece thirty years ago, suggested that efficient private bargaining would make government action unnecessary in situations of externality, especially where there is no problem of collective goods and collective action involved. Recently, Joseph Farrell has cast some doubt on this view by showing that even government action based on rules of thumb might be better than private property rights and bargaining in cases of asymmetric information. It is in such cases that the question of institutional choices matters.

After summarizing Farrell's work, the paper goes on to discuss issues not taken up there. One major problem with government action is often its sensitivity to the lobbying or rent-seeking of different individuals or groups who stand to gain or lose by such action. A possible way of adding such behavior to the analysis of Farrell's rule-of-thumb bureaucrat is suggested. The paper goes on to consider the possibility that government action is taken by self-interested individuals, but otherwise like that of the social welfare maximizing mechanism designer that is often used in such models (King Solomon in Farrell's metaphor). Here, possible inefficiency arises from the voluntariness of individual rent-seeking behavior, which imposes additional constraints on government action relative to the Solomonic approach. Finally, the paper briefly discusses the effects of possible renegotiation of institutional forms or constitutions on the contracting for special institutions that foresighted individuals might engage in.

While the discussion of the paper is preliminary and abstracts, it does suggest that the role of government has to be treated on a situational basis: there is no simple answer as to whether the market or government does better in cases of externalities and asymmetric information. Where policy-making is institution-making, as in many countries undergoing economic transition today, questions of institutional design should be focused around issues such as efficient use of information and insulation from some kinds of influencing behavior.

The Economic Role of Government: Property Rights, Externalities and Mechanism Design

Introduction

In modern, large-scale societies the government seems to be a significant and pervasive entity, if not quite on the level of Orwell's "Big Brother". Even at the local level, where some might expect to be left alone to work out their own disputes, government intervenes with ordinances and regulations. Who makes up the government, what are they supposed to do, and what do they actually do? These are contentious questions that occupy politicians and citizens, activists and academics, political scientists and economists, as well as many others. In this paper I will seek to address a small piece of this puzzle. The title of the paper suggests the scope of my enquiry, but it will be even more specific than looking at all the issues that can be encompassed by the words property rights, externalities and mechanism design. I will focus on the role of government in cases of bilateral externalities when the affected parties do not have complete information. Despite the narrowness of my focus, or perhaps because of it, it will be useful to provide some context before I take up my particular analysis.

I will not attempt anything like a survey of writings on the role of government. The basic insight seems to be that government, in replacing anarchy with order, allows the creation of greater economic surplus. Olson (1991) starts with this point and develops it extensively. He suggests that in small groups this order may be obtained and sustained by voluntary agreement: this is therefore very much government of and by the people. In larger groups, Olson argues

that the difficulties of voluntary collective action become too great, and there is a tendency to substitute coercion. In his provocative term, this is government as a "stationary bandit", as opposed to a roving one. The stationary bandit essentially monopolizes theft in his domain, and this is better for the population than competing roving bandits. Since the lord of the domain has an "encompassing interest" (Olson, 1982), he will provide public goods such as order, upto the point where the marginal cost of doing so is equal to his share of the marginal benefit in terms of additional social output. While this is better than anarchy, war, or bandit competition, it does not lead to a maximization of net social benefit, since the lord's marginal equation does not reflect the whole increment of social output.

The ultimate source of the bandit's monopoly is the possession of coercive power, typically military might. A shift in the balance of power might lead to a new autocrat replacing the old one. If no individual or group can command this decisive power, what might emerge is something that comes under the rubric of democracy, where power is more diffusely held by some segment of the population. This is the explanation provided by Olson (1991), though this balance-of-power theory of democracy has an older lineage. For example, it is the basis for McNeill's (1982) analysis of the evolution of political organization in response to changes in military technology. It also provides the core of the recent work of Huber et al (1993).

Green (1993) argues that the balance-of-power explanation can not account for examples such as the collapse of the Argentine dictatorship after the Falklands war. The internal balance of power was not appreciably affected by the military defeat in that war, yet there was a rapid

change in the form of government. Green goes on to develop a theory based on the role of private information. In his model parliament emerges as a way for an autocratic ruler to credibly signal the reality of an external threat that can not be directly observed or assessed by the populace. Thus the parliamentary form of democracy emerges as an efficient communication device. Green goes on to plausibly illustrate this model with a detailed account of the transition to parliamentary government that occurred in medieval England.

The above is not the only explanation of the transition to democracy that relies on private information and expectations. Kuran (1991), Murrell and Olson (1991), and Olson (1990) provide alternative explanations that may be competing or complementary. Kuran's is based on the expectations of individuals in society, while the others focus more particularly on the beliefs of middle-level government functionaries that are part of most modern dictatorships (and many democracies also).

The theories of government I have sketched to some extent answer the questions I posed at the beginning of this paper. A government's role is to provide public goods because they will not be well-provided on a voluntary basis. Who plays the role of government depends partly on the balance of power: it may be an individual, a small group, or several groups or their representatives. The simplest case is that of the autocrat or bandit-entrepreneur (to use another of Olson's terms), who achieves his position due to a comparative or absolute advantage in coercion. In democracy, too, we may then think of those who represent groups in society or those who lead those groups as being individuals who happen to have the skills required for

persuasion, negotiation, and so on. All are driven solely by self interest. Thus we will not get to the ideal of what government "should do", which is to provide public goods and finance them in a way that maximizes the aggregate surplus of society, but one institutional arrangement may be more efficient than another, depending on the circumstances.

The above sketch does not say too much about the services actually provided by the government. I discuss this next. The theory of government that begins with an autocrat who has a monopoly of theft is basically one where individuals have a choice between two forms of attenuated property rights. An individual has a choice, say, between a situation with no autocrat and no protection, and one with both. In the former case, he may be sure to have to give up half his output as a farmer. In the latter case he will lose it all with a high probability. The roving bandit takes it all because he has no interest in the farmer's survival or future productivity. The stationary bandit takes as much as is consistent with the individual surviving to provide as much again in the future. In this example, the government is simply offering a bilateral contract which is superior to the alternative. However, the autocrat need not stop at such measures. He may, for example, offer an organized market where goods can be exchanged, where weights and measures are inspected, and where disputes about quality or performance can be referred to an arbitrator (the autocrat or his representative). This is a public good: it is non-rival and non-exclusive, provided there is no congestion. And it may enhance the autocrat's welfare by making his subjects more productive. The cost of supplying this public good comes out of the exactions made by the autocrat, and one can imagine that the increased taxes or other tribute would more than cover the cost when the autocrat chooses to provide the public good.

In the example of the autocrat's market, there is an indivisibility, which results in a fixed cost that cannot be borne by the ordinary individual in the simple or primitive society we are imagining. Olson (1986) emphasizes that non-rivalness of a good is an extreme form of economies of scale or decreasing costs, which in general lead to market failure. However, there is a type of market failure that does not necessarily depend on fixed costs or economies of scale, namely, externalities. In fact, Cornes and Sandler (1986, pp. 41-46) conceptualize public goods as a particular kind of externality. The role of government in the case of externalities, therefore, is not fully addressed in the work that has been sketched out above, which implicitly focuses on the government's role in the provision of collective goods.

Some economists would, in fact, argue that it is only the collective good aspect that is relevant for market failure, and simple bilateral externalities can be dealt with by private exchange or negotiation. This is a major point of the most celebrated contribution on the topic of externalities and government, that of Coase (1960). This also seems to be the view of another, prolific writer on externalities, Buchanan (1973a), who emphasizes further that large numbers alone are not a problem for private resolution of externality problems, unless accompanied by some public good component. This view seems to underplay possible economies in transaction costs that might be available to the government. Recognition of this point brings us back to the connection Olson makes between non-rivalness and economies of scale. In any case, the remainder of this paper will concentrate on the case of bilateral externalities, where collective action difficulties due to large numbers are not at issue.

Coase's result has been interpreted quite broadly to imply that, provided property rights are well-defined, voluntary negotiation or bargaining will lead to the most efficient possible outcome. "Possible" here refers to the recognition that there may be "imperfections" that prevent achievement of the ideal outcome. One example of an imperfection is the costs of negotiating and transacting. Another is that the parties involved may not have complete information. Here, I shall focus particularly on the case of incomplete information. It has been shown that bargaining under incomplete information will not lead to the fully efficient outcome even when property rights are well-defined (e.g., Samuelson, 1985). In this usage, "fully efficient" refers to what would obtain if the bargainers' tastes, opportunities and so on were all common knowledge. This result is not surprising: the interesting question is whether an outsider - who we may think of as the government, or its representative, such as a bureaucrat - would be able to do any better. Here the answer that might come from the lines of thought that follow Coase, Buchanan, or similarly-minded economists, is that there is no reason for the government to be any better informed, so there is no reason for it to do better. Recently, however, this view has been rigorously challenged. Farrell (1987) has suggested that even an imperfect government may indeed do better than private negotiation with incomplete information. In the next section I present in some detail Farrell's argument, including the model he uses. This will then be the point of departure for some further observations.

Mechanism Design and Beyond

The mechanism design approach to resource allocation problems where participants have incomplete information assumes that there is some organization or person who stands outside the situation and is able to elicit and act on individuals' information in an efficiency-enhancing way. Typically, the mechanism designer has no private information itself (though this can be and has been allowed for), and its objectives are given, usually as some aggregate of individual payoffs. One of the earliest and best-known examples of this approach arises in the analysis of public good allocation decisions: demand-revealing mechanisms such as the pivot scheme (Groves and Ledyard, 1977) partly overcome the free-rider problem caused by each individual's preference for the public good being private information. The mechanism designer is a central authority that maximizes a weighted sum of individual utilities, and is allowed to levy taxes and make transfers to achieve its objectives.

In discussing the basis for the mechanism design approach, Farrell uses the metaphor of the wise, benevolent king, such as Solomon. This contrasts with the autocrat as stationary bandit described in the introduction. I will return to this distinction later, but first present Farrell's arguments. He succinctly describes how mechanism design succeeds in eliciting private information from individuals: an individual pays for the expected externality created by any claim made by that person. This internalizes the whole social problem. In the bilateral case, the externality affects just one other person, which makes it particularly simple to implement. Since the mechanism design solution involves this internalization of the externality, in some

cases the fully efficient outcome can be achieved. Basically, the mechanism design approach may be viewed as partly resurrecting centralization as an approach to resource allocation, even when there is incomplete information.

Farrell goes on to compare this kind of centralized solution with decentralization. He distinguishes between two kinds of decentralization: administrative and political. In the former, information in whatever form the mechanism requires (e.g., willingness-to-pay for a public good) is communicated to and processed by subordinates, e.g., princes for King Solomon, or bureaucrats for the modern autocrat. This kind of decentralization either is innocuous, neither adding nor subtracting to the mechanism design solution, or harmful, where it prevents interdependences being allowed for. Political decentralization, on the other hand, can have subtler and more dramatic effects. Farrell uses this term to refer to the freedom of people to choose whether to participate in a relationship with others. If people sign voluntary contracts already knowing something that others do not know, the ability to walk away adds a menu of constraints to the mechanism designer's problem that may reduce the efficiency (in an ex ante sense) of the outcome. These constraints are known as participation or individual rationality constraints. If individuals instead contract before they observe their private information, then voluntariness is less problematic: there is only a single participation constraint in expected value terms. We might, therefore, view the central authority as better being set up before individuals observe their information. If this institution is created by explicit agreement rather than arising as a historical accident, we can think of it as part of a process of framing a constitution. This

economic perspective on the reasons for constitutions, or social rules in general, has been developed extensively by Buchanan and Tullock (1962) and others (see, e.g., Buchanan, 1989).

While centralization is better than decentralization because it allows for considerations of interdependence and can make people participate in schemes that are socially beneficial, this is not the whole story. Farrell mentions that the mechanism designer may not be able to credibly commit to the optimal incentive scheme. This may open the door for individuals to try to influence the scheme rather than behaving passively, as is generally assumed in the mechanism design approach. He then goes on to focus on a second possible problem with centralization: the mechanism designer may not be able to process the required information. He presents a detailed example of a bilateral externality problem, and compares the outcome of assignment of property rights followed by Coasian bargaining with the outcome achieved by a "bumbling bureaucrat".

The example involves two people who are both affected by a single decision. In Farrell's example, this is the time at which late-night noise-making must cease. The decision is denoted by x . Each person has a most preferred value for x : person A would most prefer $x = a$, and person B would most like $x = b$, where $a < b$. Each person is worse off the further away x is from her most preferred value. The payoffs are assumed to be quadratic functions. For A and B they are, respectively,

$$u(x, a) = -A(x - a)^2$$

$$u(x, b) = -B(x - b)^2$$

Further assumptions are that the payoffs are in dollar terms, so side payments can be added or subtracted to the above expressions; the individuals are risk-neutral in money; the forms and parameters of the utility functions are common knowledge, with the exception of the values of a and b , which are private information of the respective individuals; and, for convenience, $A + B = 1$. Person A knows that b is uniformly distributed on an interval $[b_-, b_+]$. Similarly, to the outside world, a is (independently) uniformly distributed on $[a_-, a_+]$. Also, for simplicity of the subsequent analysis, it is assumed that $a_+ < b_-$. Finally, the following notation is used: $E(a)$ for the expected value of a , $E(b)$ for the expected value of b , $C = E(b) - E(a)$ for the expected degree of conflict, r for the variance of a , and s for the variance of b .

If a and b were publicly known, the solution for a benevolent ruler would be to choose x to maximize $u + v$. This can be shown to result in an optimal decision given by $x^* = Aa + Bb$. This is the fully efficient solution. The mechanism designer who does not know the individuals' most preferred values can, in fact achieve this outcome. This is done by making each individual report her most preferred value, on the promise that the decision would use the above formula with reported values replacing actual ones, and by making each person pay an amount that reflects the expected value of the externality that her report creates for the other person. If B prefers $x = b$ and A reports a' , the net effect on B's payoff is $B(Aa' + Bb - b)^2$. The expected value of this, using $A + B = 1$, is $A^2B[(Eb - a')^2 + s]$. A similar scheme applies for B, and this mechanism gets each person to tell the truth. Note that, by assumption, there are no participation constraints for the individuals: they are assumed either to have signed away the

right to opt out when the rules of this procedure were agreed to, or the possibility to opt out never existed (the peasants ruled by a despot, who, in this instance is benevolent).

Now, assuming that the above solution is beyond the central authority's capability, Farrell goes on to consider the case of the "bumbling bureaucrat". This person is assumed to act on the basis of public information alone, i.e., he maximizes $E(u) + E(v)$. The solution to this is simply $x^0 = AE(a) + BE(b)$. Compared to the fully efficient decision, the ex ante loss in expected welfare is $A^2r + B^2s$. This provides the benchmark against which to compare the Coasian solution of property rights assignment with private negotiation.

Suppose that person A is assigned the property right, i.e., the right to decide what x is. Person B is, however allowed to offer a payment to affect A's choice. Without any further restrictions, this too is a mechanism design problem: B can offer A a menu, specifying the payment for each possible choice of x . This is the most favorable set of assumptions for the efficiency of the property rights outcome. Farrell shows that B can offer a contract to A that will in fact get A to choose x^* , yet this will not be what B chooses to do. The reason is that such a contract will actually reduce B's expected welfare, where the expectation is taken only over A's possible most preferred value: at the stage of contracting, both A and B know what their most preferred values are.

Farrell derives the optimal contract for B. In general, it has the following form. For very low values of a , A takes no payment and sets $x = a$. For higher values of a , A accepts a payment

and chooses $x = x^* - A(a_+ - a)$, which lies between a and x^* . The special case where A always takes a payment and adjusts her choice is algebraically the easiest, so, following Farrell, I concentrate on this case. It occurs when $A \leq B$, or when C is large relative to r . Farrell shows that the expected inefficiency, relative to the fully efficient outcome, is $4A^2r$. A similar exercise for the symmetric case, where B is assigned the property right and A must pay her to change her decision, must yield the value $4B^2s$ for the expected inefficiency in that case. It is clear that for many values of (A, B, r, s) the bumbling bureaucrat will outperform either property right assignment.

This result is, I think, most striking. It suggests that even imperfect government can be better than efficient bargaining with assigned property rights when there is incomplete information. "Efficient" here, of course, means efficient relative to the information structure. To recapitulate the idea, if we think of individuals sitting down to frame the constitution, or other rules for subsequent societal decisions, when they know the values (A, B, r, s) , but before they know their most preferred values for the actual decision, then there will be circumstances where they will agree to allow a third party to make the choice of x . This agreement assumes that the individuals concur at this stage that the objective should be to maximize $E(u) + E(v)$. This assumption is one that merits further discussion. Another issue that Farrell alludes to in passing is that of the ability of the bureaucrat to precommit. He relates this to the problem of rent-seeking, which in fact opens up the wider issue of the objectives and motivation of government decision makers. Finally, there is the question of negotiation by individuals subsequent to the bureaucrat's decision: Farrell discusses this at length in the wider context of the role of

institutions. Institutions can provide starting points for individual bargaining, which occurs only in circumstances where the institution does not do well. In the example, if a and b both turn out to be high, the two persons may be able to negotiate an outcome that is better than the bureaucrat's decision, $AE(a) + BE(b)$. This is quite reasonable; some institutions may provide better starting points for private negotiations than do others. In the next section, therefore, I will focus on the other two issues, individual motivation at the rule-making stage, and the motivation of government decision-makers. This will return us to some of the broader issues of the origins and role of government that were outlined in the introduction.

Motivation and Institutions

There are complex issues raised by the questions of who makes up the government and what does it do. A simple place to start is with the motivation or objectives of the bumbling bureaucrat in Farrell's example. In that example, the intended focus is on the role of information, so the assumption that the bureaucrat maximizes expected welfare seems as good as any: he does not have any personal interest in the outcome. This is, of course, a common safeguard in all kinds of decision-making on behalf of others. A conflict of interest should automatically rule someone out. However, conflicts of interest may not be inherent in the decision problem, but may be created by the actions of those who will be affected by the outcome. In the example, suppose that the bureaucrat does not know the intensities of preference captured by the parameters A and B of the utility functions. Instead, he responds to the relative lobbying outlays or efforts of the two individuals. This is then a model of rent-

seeking behavior, such as suggested by Tullock (1967) and Krueger(1974). Suppose the lobbying costs and impacts are the same, measured in dollar terms and represented by y and z , for persons A and B respectively. The bureaucrat's decision in response to this lobbying is to choose

$$\hat{x} = \frac{y}{y+z}E(a) + \frac{z}{y+z}E(b).$$

This is very much like the earlier formula except that the exogenous weights, A and B , which also added up to one, have been replaced by endogenous weights which depend on the actions of the affected parties. This form of dependence of the outcome on the lobbying outlays has been used by Tullock (1980), as well as numerous others in this area. Clearly one can generalize it, e.g., Dixit (1987), without affecting the basic approach. The payoffs of the two individuals are now

$$-A\left(Ea + \frac{z}{y+z}C - a\right)^2 - y$$

and

$$-B\left(Eb - \frac{y}{y+z}C - b\right)^2 - z.$$

These expressions utilize the definition of C , which is $E(b) - E(a)$.

We assume that the individuals reach the Bayesian equilibrium of the game involved in choosing their lobbying outlays. The Bayesian equilibrium is a pair of functions $\langle y(a), z(b) \rangle$, which are

the strategies of the two individuals, such that each strategy is a best response to the other. In doing her best-response calculations, each individual takes as given the strategy of the other, and since she does not know the other's most preferred value, she uses the expected payoff. Hence, person A maximizes

$$E_b \left[-A \left(Ea + \frac{z(b)}{y+z(b)} C - a \right)^2 \right] - y.$$

Person B maximizes a similar expression. Unfortunately, the first-order conditions for even this simple case turn out to be analytically intractable, so we can not obtain an explicit solution. However, I will use the above framework to discuss several points.

First, and most obviously, if the resources y and z are used up in the lobbying process, as is often assumed in the rent-seeking literature, this is an additional source of inefficiency, beyond that created by the lack of information and the inability to process it. On the other hand, the lobbying outlays may be transfers to the bureaucrat, so they are not wasted, but simply represent a redistribution. This point has also been made before (e.g., Buchanan, 1973b). In fact, lobbying may help to move the bureaucrat's decision in an efficiency-enhancing direction. If A's most preferred point happens to be far below $E(a)$, she will lobby more since it matters to her more. This will move the bureaucrat's decision lower. But the bureaucrat's rule-of-thumb does not guarantee improvement, since individual welfare depends on how far each is from their preferred value, and the bureaucrat is assumed to move only between the two expected values. This suggests that the self-interested bureaucrat should be able to devise a cleverer decision rule to follow than the the ad hoc one we have assigned. In fact, he can even behave like the

mechanism designer, who, as Farrell points out, has the option of collecting the expected externality payments from the individuals for his own pocket! One difference would be that he would not necessarily choose to maximize aggregate payoffs, but only his own side-payments. This brings us back to one of the features of Olson's (1991) model of autocrats, where inefficiency arises because the autocrat cannot capture all the marginal gains in social surplus. Even if this is not a problem in the current context, inefficiency can arise for a different reason.

In Olson's analysis, the autocrat extracts taxes or tribute to maximize his own long-term benefit. In the current context, the individuals are not paying taxes, but instead are making voluntary transfers to affect the outcome in their favor. The additional feature here is the element of competition for favors, which creates the scope for voluntary transfers. This was not a centerpiece of the theory summarized in the introduction, though it can be incorporated therein. In the example of a self-interested bureaucrat maximizing his receipts, however, the difference from the mechanism design outcome is subtler than it appears at first. Since the bureaucrat wishes to maximize his payments, the best thing for him is to maximize the total payoff of the two individuals, and then extract that payoff, in the form of payments for services rendered. However, the bureaucrat is restricted by the voluntariness of the payments: if a transfer makes an individual worse off in any state, it will not be made. By assumption, the mechanism designer was not restricted in this way. Thus the difference in efficiency of the outcome is driven by the presence of additional individual rationality constraints rather than by the self-interest of the bureaucrat.

One final aspect needs to be clarified. If the bureaucrat has the right to make the decision, and individuals can bribe or influence him to change this decision, what represents the status quo from which an individual decides whether to make a payment to the bureaucrat? One possibility is that the fall-back position is the solution proposed by Farrell, $AE(a) + BE(b)$. That is, if the two individuals do not try to influence the bureaucrat, he will make this choice. This would be quite similar to the situation suggested by Farrell, where the individuals can negotiate privately from the above allocation. The difference arises when the bureaucrat has the power to enforce his choice by preventing deviations unless he is compensated. Alternatively, we may think of the above solution not being relevant for the sophisticated, self-interested bureaucrat. In that case, there must be some other status quo position which defines the participation constraints. For example, the status quo might be that person A has the initial right to make the decision. Now the other person has to bribe the bureaucrat rather than A to change the choice of x .

To summarize this section so far, I have suggested how a bureaucrat, bumbling or not, may be subject to active influence by individuals who will be affected by his decisions. This sort of idea is well known in the large literature on rent seeking, and the work of the "public choice" school in general, but here I have tried to integrate this into a situation where incomplete information is important. As Farrell has stressed, this is the only kind of situation where one can sensibly compare and evaluate different institutional forms. Active influence seeking may be beneficial to the extent that it directs the bureaucrat's decision in a more efficient direction, through the positive relationship between potential benefits and outlays for lobbying. On the other hand it may waste resources. Efficiency is enhanced by having a more sophisticated bureaucrat, but this

may adversely affect distribution (something that does not matter in the simple model with transferable dollar payoffs).

Given the various possibilities for behavior of a government decision-maker, what can we say about the stage of institutional choice? We may again begin simply, with the benevolent, bumbling bureaucrat as an option to a particular assignment of property rights. To recapitulate, we have three choices available to persons A and B, who know (A, B, r, s) as they sit down to decide. The choices, with associated expected efficiency losses, on the assumption that the parameters lie in the appropriate range, are:

- | | |
|------------------------|---------------|
| 1. Bumbling bureaucrat | $A^2r + B^2s$ |
| 2. Property right to A | $4A^2r$ |
| 3. Property right to B | $4B^2s$ |

Let us also suppose, for simplicity, that there will not be any possibility of ex post bargains for A and B once they observe their most preferred values. However, if we assume that the individuals are self-interested, then what matters to them is their individual payoffs under the different situations. For example, under the first regime, these payoffs are, respectively, for A and B, $-A(B^2C^2 + r)$ and $-B(A^2C^2 + s)$. The individual payoffs in the property rights regimes are considerably more complicated, but it is possible to show that the person without the property right is worse off than with a bumbling bureaucrat making the decision. This is as we would expect. Suppose, for example, that the expected welfare deviation from full efficiency is smallest when A has the property right. This may happen, for instance, if A cares much less

about deviations from her preferred value of the decision than does B. Yet B prefers to have the decision delegated to the bureaucrat. The way around this dilemma would be for A to make an ex ante side payment to B, in effect purchasing B's agreement to the institutional form. Subsequently, when the two individuals learn their preferred values, they will negotiate, with B paying A to adjust her decisions according to what values a and b happen to take. Such negotiations may take place repeatedly: if at each repetition the values are drawn independently from the same distributions, a onetime decision on institutional structure covers these repetitions. If on the other hand, the preferred values, once known, are fixed over time, B may wish to change the institutional form. Indeed, in anticipation of this both parties might wish to wait to learn more before agreeing to anything.

This somewhat stylized description of how individuals might agree on an institutional structure reveals some of the issues that might be involved. Clearly, it does not and can not provide any definitive answers. What it does highlight is the similarity between contracting for social institutions and the more usual market contracting. This may not be a new insight: it certainly appears to be present in the work of Buchanan and the public choice school. However, the tools of mechanism design and the explicit treatment of incomplete information deserve to be incorporated into this line of thinking about government, just as they have been applied to markets and firms. I have focused on the benevolent bureaucrat, but similar issues arise in a more complex way when ex post lobbying and influence are possible. These will be anticipated to some extent by individuals bargaining over the precise form that a social order will take.

Finally, of course, if who makes up the government is determined by force, these issues of contracting recede somewhat in relevance.

Concluding Remarks

In this paper I have attempted to relate Farrell's discussion of property rights, externalities and mechanism design to some larger questions of the role of government. The main thrust of Farrell's model, in my interpretation, is that there is a role for even an imperfect government in situations where there are externalities. This tempers much of what has been suggested previously on the scope of the Coase theorem, as Farrell emphasizes. Here, I suggest in addition that it expands the scope of possible government action beyond large numbers or collective good cases. Of course, what I have termed government or a bureaucrat could, in some circumstances, be interpreted as a court or other arbitrator. This raises another interesting set of issues, which have to do with the specifics of institutional design, i.e., the precise manner in which the authority and incentives of different branches of government are specified. This is somewhat beyond the scope of this research, which instead aims to understand better how rent-seeking behavior may in turn modify Farrell's analysis of imperfect government. In this paper, I have made a beginning on this, describing some of the issues and how they might be modeled. More detailed analysis remains to be done.

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